PTO/SB/21 (09-06)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission: 8

Application Number	10/714,211
Filing Date	11/14/2003
First Named Inventor	ZAHNER, Joseph E.
Art Unit	1632
Examiner Name	WOITACH, Joseph T.
Attorney Docket Number	NR 03-001

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
  - [ ] Fee Attached
- [x] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [x] Petition
- [ ] Petition to Convert to a Provisional Application
- [x] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please identify below):
  Return Reply Postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Joseph E. Zahner		
Signature			
Printed name	Joseph E. Zahner		
Date	January 16, 2007	Reg. No.	pro se

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

Signature			
Typed or printed name	Joseph E. Zahner	Date	January 16, 2007

PTO/SB/17 (07-06)
Approved for use through 01/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL For FY 2006

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 180.00

Complete if Known	
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METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 503293 Deposit Account Name: SLUTechTransfer

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☑ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____	x _____	= _____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____	x _____	= _____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____	/ 50 = _____ (round up to a whole number)	x _____	= _____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): IDS 37 CFR 1.97 (c)(2) and 1.17(p)	180.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 48,224	Telephone (314) 977-7731
Name (Print/Type)	Joseph E. Zahner		Date January 16, 2007

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Date January 15, 2007

Docket No. NR 03-001

CERTIFICATION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 16, 2007.

Joseph E. Zahner
(Typed name of person mailing paper)

(Signature of person mailing paper)

Transmitted herewith for filing is an amendment and related papers for:

Application of:	Joseph E. Zahner	**Art Unit:**	1632
Serial No.:	10/714,211	**Atty. Docket No.:**	NR 03-001
Filed:	11/14/2003		
For:	In-vitro-derived adult pluripotent stem cells and uses therefor	**Examiner:**	Joseph T. Woitach

RESPONSE TO OFFICIAL ACTION

In the present Official Action, which is dated 10/19/2006, Examiner's position is that pending claims 1-12 are rejected under 37 CFR 112 as not being enabled. Essentially, Examiner hangs his contention around the assumptions that "(t)he working example demonstrates that outer root cell treated with retinoic acid take on a morphology which appears to be neuron-like, however this is based on morphology and no specific neuronal markers are demonstrated. Except for the specific conditions set forth in the working examples, the specification provides no other specific conditions for the isolation or culturing conditions for other cell types," (Official Action, page 5, lines 3-7).

Applicant asserts that Examiner is in error in his assumption that only morphology data is shown to support the fact that the keratinocytes were reprogrammed according to the method described in detail in the specification. Both morphological and molecular marker data demonstrate successful reprogramming. Figure 2 shows that the population of reprogrammed keratinocytes express mRNAs associated with cell-types different than keratinocytes. Paragraphs [0096] and [0164]

describe the increase in neurofilament mRNA of 89% above levels detected in keratinocytes. Neurofilament represents a cell-type associated with the ectodermal lineage. An increase in molecular markers for endodermal descendent cells, e.g., alpha 1 antitrypsin, and mesodermal descendent cells, e.g., cardiac actin, is demonstrated by RT-PCR performed on reprogrammed cells (see again paragraphs [0096] and [0164], as well as Figure 2). Thus, Applicant contends that specification describes in sufficient detail to enable the treatment of adult keratinocytes that results in the expression of non-keratinocyte genes that represent ectodermal, mesodermal and endodermal –lineage derived cells.

Examiner also contends that "the specification provides no other specific conditions for the isolation or culturing conditions for other cell types." Applicant's position is that the contention is moot, given that the instant claims are specifically directed to the reprogramming of keratinocytes and do not claim any other cell types.

Examiner also takes the position that the instant claims are overly broad in that the specification lacks "specific guidance necessary to practice the instantly claimed invention in its full breadth. In particular the breadth of the claim encompasses 're-programming' the keratinocyte into any cell type, totipotent, pluripotent, or any differentiated cell type." Applicant respectfully points out that the original (instant) claim 1 is directed not to a "any cell type, totipotent, pluripotent, or any differentiated cell type," but rather to a "reprogrammed cell (that) expresses a telomerase gene product and is capable of expressing a gene product which is not expressed by a keratinocyte," (claim 1.) The specification clearly discloses the treatment of adult keratinocytes with chromatin affecting agents, which resulted in the elevated expression of hTRT mRNA (telomerase gene product), as depicted in Figure 2, treatment regimen 2, and paragraph [0163], which describes an increase of 198% in telomerase gene expression (mRNA as determined by RT-PCR as described) over telomerase expression in the untreated adult keratinocytes.

Furthermore, the "capab(ility) of expressing a gene product which is not expressed by a keratinocyte" is demonstrated by treating the reprogrammed keratinocytes with retinoic acid, a known non-specific inducer of differentiation. That treatment resulted in the expression of the non-keratinocyte gene products neurofilament, cardiac actin and alpha 1 antitrypsin, as determined by RT-PCR (Figure 2). Thus, each element of claim 1 is supported by concrete examples provided in the specification.

Examiner also provides an argument in support of the position that the literature provides a "complex story" of changes in methylation and acetylation as it relates to cell differentiation. Applicant acknowledges and supports the contention that the prior art does not sufficiently support the use of agents that affect changes in methylation and acetylation to reprogram a cell to have pluripotency. However, the fact remains that Inventor has disclosed in the examples a process for treating at least a keratinocyte with agents that affect changes in methylation and acetylation, and has disclosed gene expression data in evidence of a reprogrammed cell capable of expressing gene products representative of ectoderm (neurofilament), mesoderm (cardiac actin) and endoderm (alpha 1 antitrypsin). These are real results observed by Inventor and disclosed in sufficient enabling detail for a skilled cell or developmental biologist to practice the claimed invention.

In view of the direct evidence provided in the specification and the highlighting of those particular details in support of arguments against Examiner's contentions, Applicant respectfully requests that the rejection of the claims be withdrawn and the claims allowed to issue.

Applicant also wishes to thank Examiner for stating in the conclusion of the instant official action that "(t)he claims are free of the art of record ... (and that) there is no specific teaching nor motivation to treat keratinocyte in such a way to provide for a re-programmed cell."

Applicant believes that this response is complete. Should any issues made in the official action remain as not addressed, Examiner is invited to call or e-mail the undersigned Applicant.

Respectfully submitted,

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